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### Difficult to Wean Patients

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ORIGINAL ARTICLE

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# Difficult to wean patients: cultural factors and their impact on weaning decision-making

Kalliopi Kydonaki, Guro Huby and Jennifer Tocher

**Aims and objectives.** This study aimed to examine the elements of the intensive care environment and consider the impact on nurses' involvement in decision-making when weaning from mechanical ventilation.

**Background.** Optimal management of difficult to wean patients requires the dynamic collaboration of all clinicians and the contribution of their knowledge and skills. The introduction of weaning protocols has increased nurses' input in decision-making, but there are various elements of the decision environment that impact on their involvement, which have been given little consideration.

**Design.** Ethnography was used as the research design for this study.

**Methods.** Fieldwork took place in two tertiary hospitals in Greece and Scotland for five months each to unveil clinicians' behaviour and interactions during the weaning practice. Observation was based on the weaning process of 10 Scottish and 9 Greek long-term ventilated patients. Semi-structured interviews followed with nurses ( $n = 33$ ) and doctors ( $n = 9$ ) in both settings to understand nurses' perceived involvement in weaning decision-making. Thematic analysis of interviews and field notes followed using the Qualitative Data Analysis software NVivo. Clinicians' participation was voluntary.

**Results.** The main themes identified were the (1) organisation of the units (time and structure of the ward rounds, staff levels and staff allocation system), (2) the inter-professional relationships, (3) the ownership and accountability in weaning decision-making and (4) the role of the weaning protocols. These elements described the culture of the ICUs and defined nurses' role in weaning decision-making.

**Conclusions.** Clinical decision-making is a multi-dynamic process specifically in complex clinical situations such as weaning from mechanical ventilation. This paper suggests that weaning practice should be considered in relation to the elements of the clinical environment to provide an individualised and patient-centred weaning approach.

**Relevance to clinical practice.** Methods to enhance nurses' role in teamwork and collaborative decision-making are suggested.

**Key words:** decision-making, ethnography, intensive care, mechanical ventilation, weaning

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## Introduction

Optimal management of mechanical ventilation (MV) requires the dynamic collaboration of all staff members and the contribution of their knowledge and skills to avoid unnecessary prolongation of the weaning process and

reduce the subsequent risks of acquiring Ventilator Associated Pneumonia (VAP) and other Hospital Acquired Infections (HAI), which can compromise patients' recovery (Rose *et al.* 2011). Bedside nurses can promptly recognise the ability of the patient to wean and instigate the weaning process. This advanced role has increased with the recent

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introduction of weaning protocols (Ely *et al.* 1996, Esteban *et al.* 1997, Dries *et al.* 2004, Blackwood *et al.* 2010). The literature on MV weaning has recently advocated the effectiveness of Multidisciplinary (MDT) approaches in weaning decision-making (DM) and patient outcome, but there is lack of robust evidence as to where and how these approaches are implemented.

## Background

### Multidisciplinary approaches to weaning

The most recent evidence on MDT approaches to weaning comes from a systematic review by White *et al.* (2010), who focused on the impact of ventilator weaning protocols developed and implemented by MDTs on the duration of weaning, the length of stay in Intensive Care Unit (ICU) and re-intubation rates. Three prospective randomised controlled trials were identified which were all conducted in single settings in the USA (Smyrniotis *et al.* 2002, Grap *et al.* 2003, McLean *et al.* 2006).

All three studies were pre- and post-interventional studies with samples between 129 (McLean *et al.* 2006) and 928 (Grap *et al.* 2002). They compared a MDT-directed weaning to physician-directed weaning. Only Smyrniotis *et al.* (2002) involved organisational change in the MDT approach. All three studies showed that MDT-directed weaning reduced the duration of MV statistically significantly from 1.41–0.5 days as well as the ICU length of stay and re-intubation rate (Smyrniotis *et al.* 2002, Grap *et al.* 2003, McLean *et al.* 2006).

A limitation of these studies was that the investigators used different methods to collect data, which could have caused bias in the quality and quantity of data collected. Lack of description of the usual physician care, the intervention used and of the sample did not enable the comparison of the findings. This caused bias in their interpretation and hindered any conclusions made.

Comparison with the physician-led weaning in other countries, such as the United Kingdom (UK) and Australia, was also difficult because of the lack of description of the control and intervention groups. The structure of ICU care in North America, where these studies were conducted, involves one nurse looking after more than one patient with the use of the respiratory therapists in decisions regarding MV weaning. In the UK, Australia and other European countries where nurses have an increased role in weaning decisions (Blackwood 2000), it is uncertain whether similar MDT approaches have a significant impact on weaning practice.

Role responsibilities for MV and weaning have been studied in surveys in Australia, New Zealand and western European countries (Egerod 2003, Papathanassoglou *et al.* 2005, Rose *et al.* 2008, 2011). A survey in 53 ICUs in Greece illustrated above average autonomy scores of nurses for technical tasks, including adjusting ventilator settings and managing weaning procedures (Papathanassoglou *et al.* 2005). A recent European survey of nurse managers on professional responsibility for key weaning decisions suggested that nurses' independent involvement was limited to particular aspects, such as titration of pressure support and level of oxygen, whereas decisions of extubation were collaborative (Rose *et al.* 2011). The inter-professional collaboration for ventilation DM varied by country with nursing input higher in Switzerland, Germany and the UK and lower in Greece and Italy (Rose *et al.* 2011).

These surveys demonstrated that professional roles and responsibilities differ among countries and are also defined by the organisational characteristics of the ICU, such as staffing ratios, skill-mix, ICU structure, support and teamwork (Rose & Nelson 2005). Education and staff levels confidently influence nurses' autonomy in DM and define their role responsibility (Rose *et al.* 2011). However, other elements of the clinical environment, such as power, conflicts, teamwork, role definitions, support and their impact on decisions during the weaning process still remain considerably unexplored.

Coombs (2003) in her ethnographic study revealed that the introduction of weaning protocols has had little impact on how clinical decisions are made, given that conflict is still evident between nurses' and doctors' discussion on patient management. Notwithstanding, the effectiveness of weaning protocols should be seen within the context of the clinical environment where the protocol is implemented (Blackwood *et al.* 2010). This paper aims to give a thorough understanding of how the ICU environment impacts on weaning DM.

## Design and methods

This study was based on immersion into the work activities of critical care nurses to develop an understanding of the way socio-cultural factors interact in weaning DM. Consideration of the culture of the clinical environment is particularly relevant to health and illness as it may instigate different approaches to the promotion of patient-centred health care (Morse & Field 1995, Streubert & Carpenter 1999).

Ethnography was considered the appropriate methodology that would allow the close observation and engagement

with the critical care nurses and their weaning practices to unveil interactions and processes that influenced decisions (Atkinson & Hammersley 1998, Germain 2001). Previous observational studies have proved that fieldwork can be used effectively to define and interpret in depth human behaviour and perceptions in relation to patient care (Mardegan 1997, Aitken & Mardegan 2000). The researcher, a critical care nurse herself, selected purposively two settings that were different in their philosophy of care, the resources and organisational structure to examine the influence in weaning DM. The characteristics of the two settings are presented in Table 1. The researcher was never a member of staff in either of the ICUs selected.

### Data collection

Fieldwork took place in two ICUs in two tertiary hospitals in Greece and Scotland between 2008 and 2009. After the initial two-week familiarisation period to create rapport with the participants in each setting, data collection started and lasted for five months in each setting (137 days in the Scottish ICU and 171 days in the Greek ICU). Every day, patients were screened for eligibility. Patients admitted with pneumonia or exacerbation of COPD and were not extubated within 48 hours from admission were selected. Their weaning process was followed from day 2 of ventilation until extubation or discontinuation from any form of positive pressure ventilation for more than 24 hours, if they had a tracheostomy.

Participant observation was the main data collection method. The researcher observed the bedside nurse, who cared for the selected patient, for two to four hours daily and recorded observational data on nurses' activities and decisions in relation to weaning from mechanical ventilation. Observation guidelines (Table 2) were developed to increase the possibility of capturing weaning decisions, in particular when more than one patient were eligible. Each weaning decision was recorded on the devised Decision Episodes Tool (DET). Ward-round discussions about the patient's weaning progress and interactions among nurses and doctors were also captured. The researcher recorded the changes of the ventilator settings from the 24-hour chart in the devised Adjustment of Ventilation Tool (AVT).

Close to the end of the shift, the researcher conducted a 30-minute reflective interview with the bedside nurse to examine the cognitive process when making weaning decisions, using prompts from the observational data and the recorded changes of the ventilator settings. These were recorded and verbatim transcribed. At the final stage of the study, semi-structured interviews with the nurses and the doctors were conducted to examine their perceived roles in weaning DM and the organisational factors that influenced that process, which allowed the comparison with the observational data. The semi-structured interviews lasted for 30–60 minutes, were conducted in the working environment and were recorded. Care was taken to select clinicians with a range of clinical experience (Tables 3 and 4). The design of the study and the stages of data collection are outlined in Table 5.

**Table 1** Greek & Scottish ICU characteristics

Settings	Differences		
	Philosophy of care	Organisational structure	Resources
Greece	Biomedical model Nursing profession dependent of medicine (Legislative Decree 683/1984) Nursing curriculum biomedical Lack of continuing education for nurses Nurse licence for life	Intensivist-run ICU Medical & surgical patients Small and homogenous medical team 8-hour shift pattern No allocated time for breaks	12-bedded ICU Nurse: patient ratio in ICU is 1:3 39 FTE nursing staff 17 medical staff (nine consultants, five registrars, three junior doctors)
Scotland	Holistic model The code: Standards of conduct, performance and ethics for nurses and midwives (2008) emphasises professional accountability Nursing curriculum holist, nursing specific knowledge Continuous Professional Development through competencies NMC 3-year periodic registration	Intensivist-run ICU Medical & surgical patients Large medical team (frequent rotation of senior medical staff) 12-hour shift pattern Specifically allocated time for breaks	18-bedded ICU Nurse: patient ration is 1:1 180 FTE nursing staff (30% nurses worked part-time) 40 medical staff (15 consultants, 15 registrars, 10 junior doctors)

**Table 2** Participant observation guidelines

Observation guidelines
Observation of weaning practice between 8 am and 6 pm.
Weaning occurred mainly during the day and further reductions of ventilatory support ceased after 6 pm
Observation periods of 2–4 hours alternated between the cases that had to be observed the same day
Each observation period had to include at least two ward-round sessions of the same patient
Each patient case was followed on different time slots each day of observation, so as to capture diversity in time of weaning decisions
The observation schedule was assessed daily according to the patient cases and nurses' availability to participate

**Table 3** Demographics of nurse participants

Demographic characteristics of nurse participants	Scotland N = 16	Greece N = 17
Age		
21–30	5	5
31–40	8	10
41–50	3	2
Gender		
M	7	4
F	9	13
Nursing experience		
<5 years	7	5
6–10 years	7	4
11–15 years	2	5
16–20 years	0	3
Experience in this ICU		
<5 years	9	6
6–10 years	5	3
11–15 years	2	5
16–20 years	0	3
Qualifications		
Nursing Diploma	5	1
BSc Nursing	11	16
MSc Nursing	1	1
Critical care certificate	10	2

## Data analysis

The reports of observational data and the transcripts from reflective interviews with the bedside nurses were filed according to the patient case and in chronological order. Interviews with the Greek participants were translated into English soon after transcription, before being analysed. A reflective diary was used to document the process of data collection and any emerging thoughts, feelings and intuitions of the researcher throughout the data collection and analysis. The researcher used the computerised programme

4 NVivo 8 Student (Microsoft, QSR International Pty, Ltd)

**Table 4** Demographics of doctor participants

Demographic Characteristics of Doctor Participants	Scotland N = 3	Greece N = 6
Gender		
M	2	2
F	1	4
Designation		
Junior doctor	1	1
Registrar	1	4
Consultant	1	1
Speciality		
Anaesthetist	1	0
Intensivist	2	6

**Table 5** Outline of the study design

Research design
1st phase of study
Two-week familiarisation period in each setting. Then fieldwork for 5 months in each setting
Identification of the patient case for follow-up of the weaning process
Observation of the bedside nurse looking after the selected patient on weaning practice based on observation guidelines (table 3)
Observation of the bedside nurse for 2–4 hours daily, informal conversation about the weaning management of the patient and recording of weaning decision episodes using the Decision Episodes Tool (DET)
30-minute reflective interview with the nurse at the end of the shift to examine the cognitive process when making weaning decisions
24-hour chart and medical notes review each day of observation and recording of ventilator setting adjustments using the Adjustment of Ventilation Tool (AVT)
2nd phase of study
Follow-up interviews with nurses and doctors to examine perceived roles during weaning practice and organisational factors that influence the weaning practice

to facilitate the organisation of the abundant data, the coding and processing of text and audio data. A set of observational reports for each patient, a set of each patient's changes of ventilator settings, a set of reflective interviews that referred to each patient and a set of semi-structured interviews with nurses and doctors were created.

Analysis was conducted in two stages: the first stage involved thematic analysis of all data sets to identify the weaning patterns used for each patient (data published in Kydonaki 2010), to describe the decisions made by clinicians, to describe the interactions and subtle influences of the decision-making process and to identify factors that influenced this process. These data are presented in this paper.

The second stage involved an in depth analysis of the cognitive process of nurses' DM. Reflective interviews with the bedside nurses were analysed based on the concept attainment theory (Bruner *et al.* 1956) using concept maps (Novak & Gowin 1984). These data (Kydonaki 2011, PhD thesis) are out with the scope of the paper and will not be presented here.

Ethical considerations

Access to the settings was approved by the local Research and Development departments and the Local Research Ethics Committees of each hospital. Clinicians' participation in observation and interviews was voluntary. Patient consent was not considered necessary because patients were not directly involved in the data collection. Patients' privacy and confidentiality was respected, all data were anonymised and observation was discontinued if the nurse thought it compromised patient care.

Results

Ten patients in the Scottish ICU and 9 in the Greek ICU were selected (Table 6). Forty Scottish and thirty Greek nurses consented to be observed. Semi-structured interviews were conducted with 16 nurses and three doctors in the Scottish setting, and 17 nurses and six doctors in the Greek setting.

The main themes that emerged from thematic analysis during the first stage of data analysis were as follows: (1) the organisation of the two ICUs, (2) the inter-professional relationships, (3) ownership and accountability and (4) the role of the weaning protocols.

Organisation of the units

Data from participant observation and interviews with the clinicians, in both settings, revealed that the shift structure and routine, the staff rotation scheme and the increased workload influenced the weaning practice. In the Greek setting, decisions about the care of the patient, weaning plans,

extubation or tracheostomy formation, were made at the morning medical handover. Then, each doctor was allocated the care of three patients and was responsible for the assessment and implementation of any intervention, including the weaning plan. Changes of the weaning plan were made during the afternoon ward round.

In the Scottish setting, a provisional plan was made by the doctor in the morning assessment, but final decisions about the weaning plan were made at the formal ward round. Weaning did not initiate before the ward round. This delayed the initiation of the weaning progress.

Nurses' shift pattern and rotation affected the frequency that nurses cared for the same patient. In the Greek setting, the eight-hour shift pattern (five days per week) increased the frequency of staff rotation during the week and the possibility of the nurse to care for the same patient more regularly. Greek nurses claimed that their '*knowledge of the patient*' and the patients' response to ventilatory support reduction increased when they looked after the same patient on consecutive days. In contrast, Scottish nurses, who worked a 12-hour shift pattern, were usually allocated a different patient every day, and claimed that they had fewer opportunities to care for the same patient on consecutive days. This limited their familiarisation with the patient and made them reluctant to proceed independently with changes of the ventilator settings without having medical approval. This was confirmed by both observation and interviews with the nurses.

Increased workload was another reason that delayed weaning decisions, in particular in the Greek setting, where the nurse-to-patient ratio was 1–3. As highlighted below, weaning was not a priority task:

You do not have the time during a day shift, when one of your patients is going for a scan, the other one gets a tracheostomy, the other patient comes back from the scan. If everything is fine, we can start weaning. (Vivian, Greece)

Both Greek and Scottish nurses perceived weaning as an elaborate task, which required constant monitoring of the patient and demanded concentration by the bedside nurse. Even when the nurses had assessed the patient's readiness to wean, they avoided performing a sedation hold and initiating ventilator weaning until they were prepared to provide full attention to the patient's breathing. For instance, during break cover nurses avoided performing a Spontaneous Breathing Trial (SBT). Issues of safety for the patient were raised by both Greek and Scottish nurses:

I don't like to wean my patient until they are washed, they are sitting on a chair, until all the fuss of the morning ends, and then

Table 6 Characteristics of selected patient cases

Country	Age (years) (mean)	Sex	Diagnosis
Scotland (n = 10)	60	Seven male	6 type I RF
		Three female	4 type II RF
Greece (n = 9)	67.9	Seven male	7 type I RF
		Two female	2 type II RF

RF, respiratory failure.

they are kind of ready to start weaning... it is just if you are going to do it successfully, like in a long-term ventilated patient, it is going to be lots of work. (Marion, Scotland)

## Inter-professional relationships

Interactions at the ward round demonstrated the dynamics and power distribution among clinicians during weaning decision-making.

### Doctor-nurse relationship

'Collaborative pairings' were defined as harmonious, supportive and reciprocal relationships based on trust, appreciation, respect and confidence between doctors and nurses. Examples were observed when the doctors decided to initiate weaning and relied on nurses' judgment to start reducing the ventilatory support.

In both settings, experienced nurses instigated decisions, such as initiating weaning or SBT, but they did so covertly. They used a '*play the game*' approach to prompt a decision. The '*game*' involved an informal agreement with the doctor, which worked to the advantage of both the doctor and the nurse and was based on a reciprocal, trusting relationship. It provided nurses with a legal cover and partial authority to make adjustments of the ventilatory settings, but nurses delegated the responsibility for the decision to the doctor. The ability to '*play the game*' depended usually on nurses' level of experience. Junior nurses felt reluctant to prompt such decisions in this way:

And if the doctors are comfortable with the nurses, then we can make decisions ourselves as opposed to asking them every time we want to do something. Which we do, because we feel like we should! Because it is the doctor's decision at the end of the day. (Marie, Scotland)

The doctor and nurse communication could be a bit better, because sometimes at the ward round, they (the doctors) might be talking to themselves and you try to pick up what you can. You certainly ask questions, but when it comes to making decisions, they kind of make them between themselves. (Christina, Greece)

Conflict was observed in decisions about performing a SBT or extubation, when nurses felt that the medical approach was aggressive. In such cases, nurses, in both settings, irrespective of experience, compromised to avoid conflict and followed medical orders, as the following examples illustrate:

The patient was on ASB on 40% oxygen and the doctor's plan was to perform a SBT and extubate the patient. The nurse commented that the patient had copious muco-purulent secretions and that on

auscultation there were crackles audible. The nurse didn't want to extubate the patient. At the ward round, the doctors decided to extubate, so, the nurse did so. The nurse observed the patient and commented that his cough was very weak and he was retaining his secretions. He kept removing the mask and did not look comfortable at all. He was agitated and his saturation dropped to 93%. (Fieldnotes from observation of Patient 5, Scotland)

Researcher: Can you remember an example that you disagreed with the doctor?

Helen: Some consultants will turn ventilation down hugely, I mean not kind of incrementally stage by stage, and then walk away. And then you are left to sort all out. They are more aggressive. (Helen, Greece)

### Intra-professional relationships

The level of autonomy that nurses demonstrated corresponded to the level of support they received from the senior nurses, which also affected their motivation and collaboration. Scottish nurses felt more supported by the senior nurses and their manager than Greek nurses. The latter regarded their intra-professional relationships as more competitive than those with the doctors. The nurses below describe a very competitive working environment with limited educational support and guidance from senior nurses and the manager:

... I am very embarrassed to work here... If I am with people who cause problems, I don't even use the stethoscope to assess the patient's chest. However, on a night shift that is dark, I also assess the abdominal sounds, I will assess my patient better, clinically, I mean. During the day shift, I do it very rarely. (Irene, Greece)

...What I see here is inequality...they (manager) reject people's study leaves, or they are selective to who gets it. Others have to use their annual leave to attend a seminar or a conference, they are not very supportive. And this is because they feel deficient in knowledge themselves. Some senior nurses are resentful of ideas from highly educated nurses, because they have less years of experience. (Georgia, Greece)

Greek nurses emphasised on motivation and enthusiasm to form and sustain effective teamwork. The increased workload and stress in ICU, which was more obvious in the Greek setting due to the staff shortage, did not foster a supportive and collegial working environment. In such an unfriendly and competitive environment, nurses avoided taking initiatives and being involved in DM. A Greek doctor quoted:

There are nurses who can wean, there are nurses who cannot wean and there are nurses who do not want to wean. It depends on their willingness and motivation. Those nurses who are motivated, they

like their job, and they view the patient as their patient not only the doctor's patient. (Doctor Chris, Greece)

In the Scottish setting, nurses felt more supported by the senior staff, but they demonstrated a similar to Greek nurses clinical behaviour:

When we don't think that a patient is ready to wean, it is harder to say 'no, I don't think this patient should start', because that's when they (the doctors) are less willing to listen. If they think that someone has to start weaning, they want you to start weaning them. And that's when it becomes difficult to say I think we need to wait. (Lille, Scotland)

### Ownership and accountability

Both Scottish and Greek nurses did not perceive weaning as part of their role and were reluctant to be accountable for such decisions. A common consideration was the lack of legal cover by their professional body to make weaning decisions:

The law does not cover us in most of our interventions. Based on the law we are not allowed to wean. But we do, and that depends on the nurse if she wants to intervene. (Marie, Greece)

Nurses claimed that lack of formal education on MV and weaning deprived them of skills and confidence in making weaning decisions:

We are not competent in using the ventilators. There is no such module during our education, there is no such course that you learn the basic use of ventilators. (Angela, Greece)

Education and experience I think are the only two ways that you can improve decision-making. (Yvonne, Scotland)

Key decisions in weaning were predominantly doctor-led in both settings. Yet, even within their decision territory, critical care nurses showed a lack of decision autonomy, which was relevant to the organisation of the unit, the level of support they received but most importantly to their perceived role and accountability in weaning DM.

### Weaning protocols

Participants in both settings advocated that the weaning protocol in their setting was rarely used. It was considered a guideline to their decisions and a tool to support and direct junior nurses when reducing the ventilator support based on particular clinical criteria. More experienced nurses referred to the protocol when uncertain, but in most cases, they based their decisions on their clinical judgment and experience.

Participants advocated that the role of the weaning protocol was to standardise the care of weaning patients. However, they found the existing weaning protocol not applicable to the needs of the long-term ventilated patients who required an individualised approach to weaning. One of the senior Scottish nurses characterised the existing practice of weaning as '*yo-yoing of pressure support*' to signify the lack of consistency in the reduction of ventilatory support.

Weaning decisions were based on the discretion of the medical team and on personal preferences. One of the Greek nurses highlighted this in the excerpt below:

The protocol, if it is going to be followed or not is up to the doctor who will decide whether he will proceed with the usual steps or he will follow something else. This is not usually a decision for the nurses to make. (Georgia, Greece)

For his part, one of the Greek doctors expressed the view that weaning protocols '*are for those who do not know how to wean*'. He advocated that medical teams that are trained similarly follow similar weaning approaches. This was not observed in the Scottish setting, because of the frequent turnover of the medical staff and the bigger medical team.

Nurses perceived the weaning protocol to be a legal reference they could base their decisions on. For the long-term ventilated patients, though, the applicability of the weaning protocol was questioned; so nurses were deprived from this legal cover to make independent decisions.

In both settings, nurses highlighted the lack of a formal, clearly structured and documented method of communicating weaning decisions. The '*wean as able*' or '*ready for weaning*' medical instruction, communicated either verbally in the Greek setting or written in the Scottish setting, did not provide a clear and detailed plan for weaning and was open to personal preferences, the different interpretation based on nurses' clinical judgment, and the level of expertise and competence in weaning from MV. This created inconsistency and lack of sustainability in the weaning approaches followed and highlighted the need for a different approach in weaning long-term ventilated patients.

### Discussion

This study uncovered elements of the working environment that hindered nurses' DM during the demanding work of weaning patients from MV and discouraged them from a more independent role. The lack of support from senior nurses, the power dynamics among clinicians, the structure of ICU routine and the inefficient role of the weaning protocol to guide DM were instrumental.



Scottish nurses felt well supported by the senior nurses. This support was absent in the Greek setting and in combination with the increased workload and lack of resources generated competitive relationships that did not promote nurses' input in DM. There have been few observations of conflicting relationships between nurses in previous studies in Greek settings (Merkouris *et al.* 2003), but not in relation to the management of weaning patients. Although the enhancement of nurses' autonomy and professionalism has become a quite urgent issue for Greek nurses, many authors highlight that lack of support is a barrier to enabling nurses' involvement in DM, in particular in a traditionally medically dominated area, such as weaning from MV (Merkouris *et al.* 2003, Patiraki-Kourbani 2003).

Supportive management '*on the floor*' is important to increase nurses' involvement in patient care, but not exclusive (Papathanassoglou *et al.* 2005, Rose *et al.* 2008). An interactive process, which involves education, support, counselling and evaluation of the situation in collaboration with peers can result in the development of DM strategies to address weaning tasks.

The medical hegemony in critical care can be justified by the biomedical model of care in the Greek setting. Yet, in the Scottish environment, the holistic model of care did not foster collaborative DM either. Nurses were usually marginalised in DM and used a '*play the game*' manoeuvring to influence on the decisions made. Although nurses' support was more evident, the so-called *collaborative pairings* did not encourage a challenging nursing behaviour with regards to weaning decisions. One could argue that it was a convenient negotiation between the nurses and the medical staff to make subtle, small changes of the ventilatory settings based on the '*wean as able*' medical instruction.

Similar behaviour was observed by Coombs (2003), who highlighted that the traditional hierarchies within the clinical team remain, despite the evolution of the nursing role, and that the nursing voice is limited due to limitations imposed by others and by ourselves. Medical hegemony continues to render nurses unable to influence substantially DM and, therefore, bring their knowledge to the weaning process (Coombs & Ersner 2004).

The lack of influence in DM derived also from nurses' perceived role in weaning decisions grounded on the Code of Professional Practice, which does not support their involvement in complex decision tasks such as weaning. However, when exploring the deeds of professional practice, neither the Greek nor the British code of Professional Practice state, specifically, that critical care nurses cannot

make clinical decisions about weaning from MV. Rather, the codes emphasise on individual professional accountability and clinical DM (Nursing Midwifery Council Code of Professional Practice 2008, Legislative Decree 683/1984). It is nurses' perceived lack of professional accountability that inhibits them from making independent weaning decisions (Gelsthrope & Crocker 2004). In Greece, the traditional nursing roles characterised as the '*eyes and ears*' of the doctor, loyally following instructions and reporting back, demonstrate that nursing is still dependent on medicine for knowledge and underpins its practice, which leads to lack of authority and independence in clinical DM (Kotsabasaki 1998).

Nurses' hesitation to be accountable for weaning decisions generates a question about what constitutes an autonomous nursing decision in weaning practice. The discrepancy between technical and decision autonomy suggests that nurses are allowed to perform specific tasks, even when that involves extubation or SBT, but it does not imply that these decisions are based on their own judgment or that they take responsibility for them (Rose *et al.* 2008). More focused research on the differentiation between autonomy in technical tasks and decisional autonomy is required to address this question.

Both Scottish and Greek nurses stressed the importance of communication of the weaning approaches, given that the existing weaning protocols did not meet the needs of the long-term ventilated patients. Although weaning protocols have been well supported in the literature to improve patient outcome, their implementation should be considered in relation to the patient group targeted and the culture of the clinical environment (Blackwood *et al.* 2010). In this study, the '*wean as able*' approach was open to each clinician's personal preferences and the competence of the bedside nurse.

The findings of this study stressed the importance of ensuring and encouraging the contribution of all members of the ICU team in weaning DM and promoting the continuity of patient care. Smyrniotis *et al.* (2002) demonstrated a significant improvement in patient's length of ventilation with their MDT approach that involved organisational change. That could involve changes in the ward-round time, and break time so as to ensure that all members of the team are directly involved in the DM and the development of a structured and clearly documented weaning plan that will meet the needs of each individual patient. Such structure is believed to promote sustainability of ventilator management and reduce the influence of personal preferences in weaning management. A documented plan would also provide legal cover for nurses to proceed with changes

of ventilatory settings and would allow them to use their judgment and make decisions over the medically orientated clinical area.

Finally, this study demonstrated nurses' need for an educational programme on MV and weaning. Papathanassoglou *et al.* (2005) stated that altering the focus of educational programmes of Greek nurses to more theory-orientated curricula might provide a stronger knowledge-base and competence in clinical DM.

### Limitations of the study

Clearly, the findings from two settings cannot be generalised to the population of Scottish and Greek nurses or the whole population of critical care nurses, because the sample size was of necessity small. The combination of interviews, observation and reflective interviews, however, increased the depth of data obtained and the trustworthiness of the study. There is no perfect method and some trade-off is often necessary for the collection of valid and reliable data (Parahoo 2006).

### Conclusion

Both clinical environments studied did not encourage collaboration and communication among clinicians that could lead to consistency in weaning strategies and could leave nurses with space for autonomy in their part of the weaning process. Whilst the findings of this study are not conclusive, they highlighted that weaning practice should be considered as a system incorporating elements of the clinical environment in the DM process. Further research in the field should focus on quality improvement innovative studies for the management of weaning of the long-term ventilated patients.

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### Relevance to practice

This study suggests that the focus should be on creating processes and structures that strengthen clinicians' adherence to MV weaning practices. Approaching the weaning practice as a system, we should aim to:

- 1 Increase professional staff knowledge and skills in weaning long-term ventilated patients by developing an educational programme at a competence level for both nurses and doctors.
- 2 Improve communication and documentation system by designing individualised weaning plans to depict the patient's short-term (day-today) and long-term (weekly) weaning progress and needs.
- 3 Encourage a joint doctor/nurse ownership to develop flexible clinical guidelines stratified to the needs of patients that require long-term ventilation.

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### Contribution

XXXXXXXXXX.

### Conflict of interest

All authors have no conflict of interest for this study.

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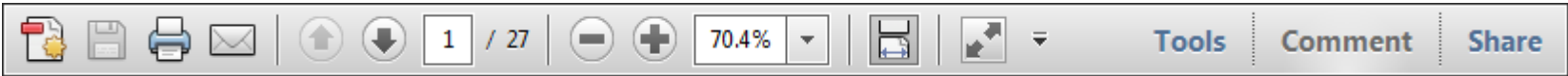
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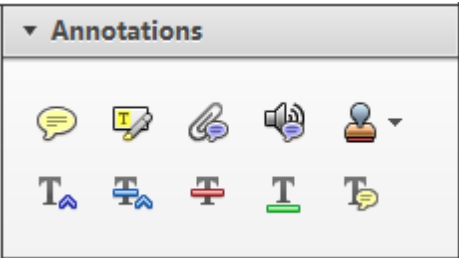
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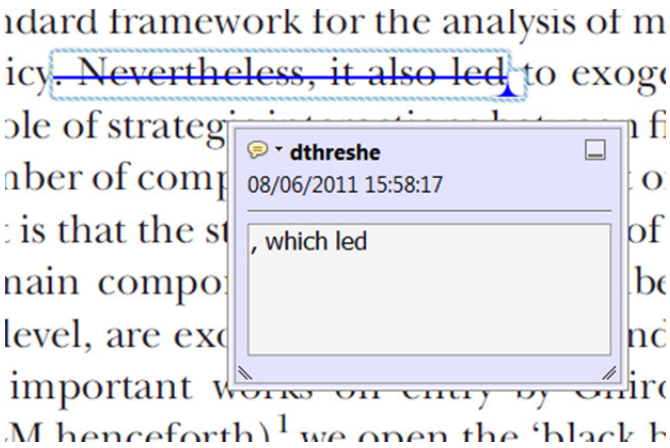
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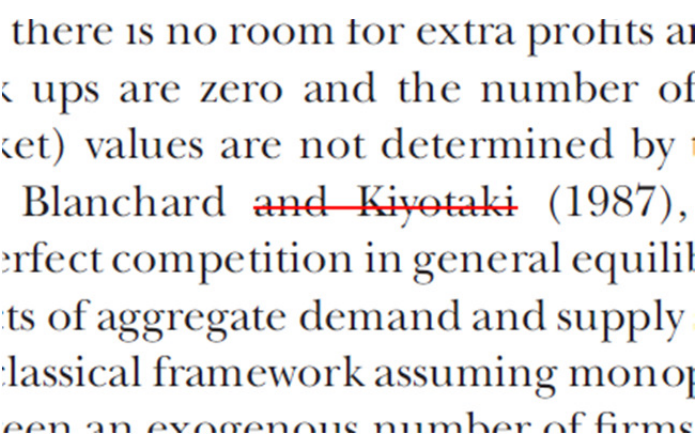
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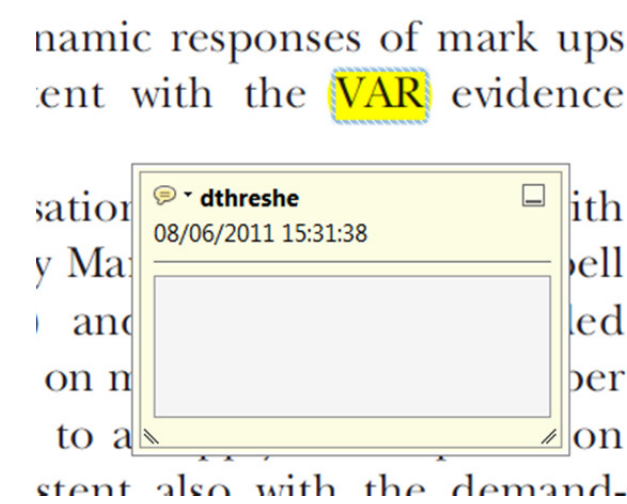
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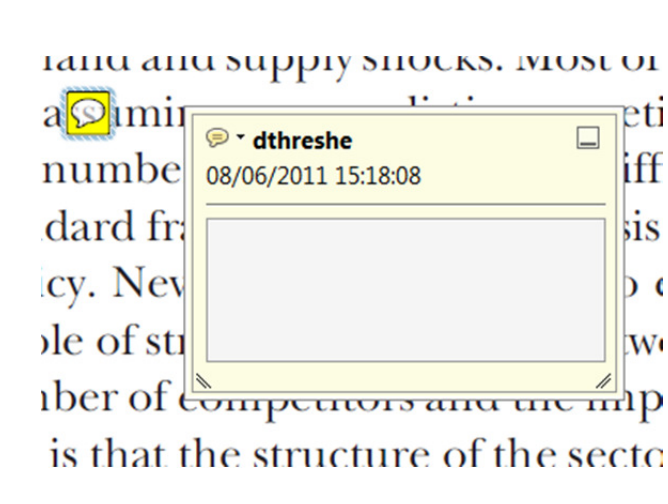
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
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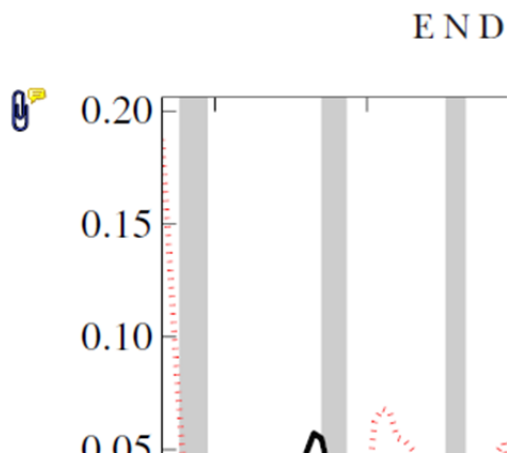
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on perfect competition, constant returns  
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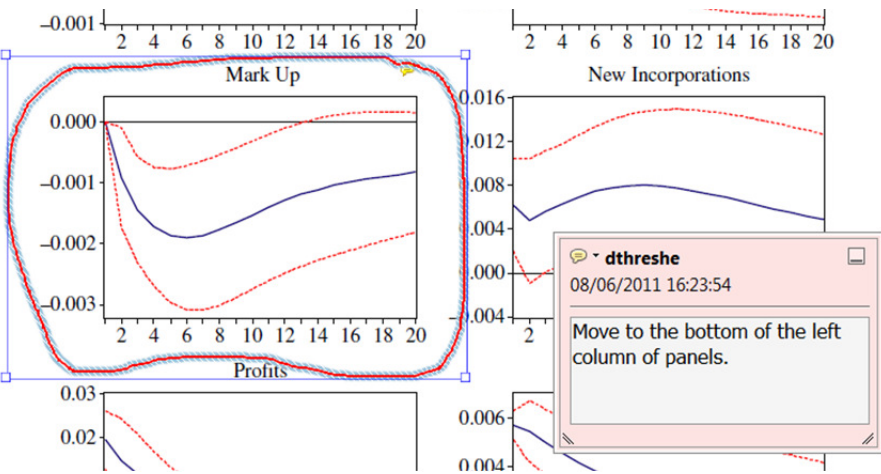


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